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ABSTRACT

The use of the "keyword" method as a tool for improving memory in learning disabled students is explained. The keyword method consists of two stages: an acoustical link stage and a stage in which the student is provided with a picture of the keyword interacting with the appropriate response term. The method can be modified for use in vocabulary instruction, instruction in the content areas, and attribute learning. Another memory strategy combines keywords, pegwords, and a method of loci for remembering numbered or ordered information beyond the number 10. Several mnemonic illustrations are included. (SW)

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Memory Strategies for Learning Disabled Students[1]

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Running head: MEMORY STRATEGIES

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Abstract

This presentation is intended to demonstrate to teachers of learning disabled students how memory strategies can be used to increase initial learning and delayed retention of school-related material. In addition, methods of adapting school content to keywords are demonstrated. All information is based on recent research conducted by the authors and their colleagues.

Memory Strategies for Learning Disabled Students

Since the times of the ancient Greeks, memory strategies have been used successfully to increase the amount of information recalled (Yates, 1966). Recently, it has been determined that certain memory strategies have had impressive effects in improving memory skills with school-age children (Levin, 1981). One particularly effective method is a strategy known as the "keyword" method (Atkinson, 1975). This method consists of two stages. The first stage is an acoustical link stage, in which a concrete word acoustically similar to the referent is given (keyword). In the second stage, the student is provided with a picture of the keyword interacting with the appropriate response term. For example, in learning the Spanish word "pato" (duck), the learner is first taught the keyword "pot" for "pato" and shown a picture of a duck with a pot on its head. In retrieving the information, when given the stimulus "pato," the learner thinks of the keyword "pot" and of the picture of the pot and remembers that the pot was on the head of a duck, and gives the English equivalent "duck" (see Figure 1).

Insert Figure 1 about here

Vocabulary Instruction

A variety of these methods have recently been applied with

mildly handicapped learners (Mastropieri, Scruggs, & Levin, in press a). In fact, learning disabled students instructed in these mnemonic procedures have consistently outperformed students instructed in free-study control methods and in direct instruction procedures. For example, Mastropieri, Scruggs, Levin, Gaffney, and McLoone (in press) taught junior high school aged learning disabled students vocabulary words via one of two instructional procedures: mnemonic instruction or direct instruction. Students in the mnemonic condition recalled significantly more vocabulary words than students in the direct instruction condition. Interestingly, Scruggs, Mastropieri, and Levin (in press) have also tested this method of vocabulary instruction with educably mentally retarded adolescents and reported similar results favoring students instructed in the mnemonic keyword procedures.

Instruction in the Content Areas

Another modification of the keyword method is the combination of keyword and "pegwords" to remember ordered or numbered information. The "pegword" is an easily pictured rhyming word for numbers one through 10 (one is bun, two is shoe, three is tree, etc.). A keyword is then given for the stimulus term and shown in an interacting picture with the pegword. For example, in learning the hardness level ("1") for the mineral bauxite, the learner is provided with a keyword for bauxite ("box") and shown a picture of the keyword interacting with its pegword ("1" = "bun"): in this

case, "a box full of buns" (see Figure 2). When given the

Insert Figure 2 about here

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stimulus word bauxite, the student thinks of the picture of the box, remembers it is full of buns, and gives the response "one." This particular keyword-pegword strategy has been shown to be extremely effective with learning disabled/mildly handicapped learners, not only in immediate recall tests, but in 24-hour delayed recall tests (Mastropieri, Scruggs, & Levin, 1983). In addition, more recent research has shown that keyword-pegword strategies have produced effects superior to those obtained with direct instruction procedures (Mastropieri, Scruggs, & Levin, in press b; Mastropieri, Scruggs, McLoone, & Levin, 1984; Scruggs, Mastropieri, Levin, & Gaffney, 1984).

Attribute Learning

Scruggs et al. (1984) not only taught learning disabled students the hardness levels of minerals, but also taught simultaneously the attributes, color, and use. In this investigation, students were assigned to one of four instructional conditions: mnemonic, free-study, or one of two direct instruction procedures. Again, students who had been taught to use the mnemonic procedures recalled significantly more of the multiple attributes than students in any of the control

conditions. In addition, free-study condition students recalled significantly more facts than direct instruction condition students.

Even more recently, Mastropieri, Scruggs, McLoone, and Levin (1984) modified the procedures of the Scruggs et al. study. This time, these researchers taught learning disabled students information about minerals in a dichotomous fashion. For example, instead of learning that wolframite was "4" on the hardness scale, black in color, and used in making light bulbs, students learned that wolframite was a soft mineral, dark in color, and used in the home. Not surprisingly, students instructed mnemonically recalled more factual information than students instructed via free-study techniques and direct instruction procedures. As in the past experiments, free-study condition students recalled significantly more than direct instruction condition students.

Pegword Adaptations

A most complex memory strategy combines keywords, pegwords, and a method of loci for remembering numbered or ordered information beyond the number 10. The method of loci involves a seasonal referent (spring garden scene, summer beach scene, etc.) to identify the decade of numbers. For example, in remembering that Lincoln was the 16th president, the learner is provided with a keyword ("Lincoln" = "links"), pegword ("sticks" for "six"), and seasonal loci (summer beach scene, for second decade of 6, i.e.,

16). These are combined in one interacting picture, of "links" of a chain held up by "sticks" in a "summer" beach scene. The learner visualizes the "links" for Lincoln on sticks on a beach, and remembers that sticks on a beach stands for the number 16 (see Figure 3).

Insert Figure 3 about here

When learners retrieve this information, first they think of the keyword for Lincoln, link, and then think back to the picture with the links in it. Then, they recall that the links were held up by sticks (for 6) on the beach (2nd decade) and are able to respond with the appropriate number or 16. This method has also been shown to be very effective with gifted learners (Levin, Dretzke, McCormick, Scruggs, McGivern, & Mastropieri, 1983). At present, however, this technique has not been tested with learning disabled students.

Summary and Conclusions

It has been shown that the keyword mnemonic technique can be an efficient instructional procedure in teaching a variety of content areas to learning disabled students. It appears that the method can be adapted easily to different learning situations. Even though extensions of the method are still being tested, it seems that the method is a particularly useful one for improving the learning and memory skills of mildly handicapped learners.

References

Atkinson, R. C. (1975). Mnemotechnics in second-language learning. American Psychologist, 30, 821-828.

Levin, J. R. (1981). The mnemonic '80's: Keywords in the classroom. Educational Psychologist, 16, 65-82.

Mastropieri, M. A., Scruggs, T. E., & Levin, J. R. (in press a). Research in progress: Mnemonic learning strategies for gifted and handicapped learners. Exceptional Children.

Mastropieri, M. A., Scruggs, T. E., & Levin, J. R. (in press b). Direct instruction vs. mnemonic instruction: Relative benefits for exceptional learners. Journal of Special Education.

Mastropieri, M. A., Scruggs, T. E., Levin, J. R., Gaffney, J., & McLoone, B. (in press). Increasing the vocabulary of learning disabled students using mnemonic instruction. Learning Disabilities Quarterly.

Mastropieri, M. A., Scruggs, T. E., McLoone, B., & Levin, J. R. (1984). Learning dichotomous information: A comparison of three instructional procedures. Unpublished manuscript, Utah State University.

Scruggs, T. E., Mastropieri, M. A., & Levin, J. R. (in press). Vocabulary acquisition of retarded students under conditions of direct and mnemonic instruction. American Journal of Mental Deficiency.

Scruggs, T. E., Mastropieri, M. A., Levin, J. R., & Gaffney, J. (1983). Facilitating the acquisition of science facts in learning disabled students. Unpublished manuscript.

Footnote

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Figure Captions

Figure 1. Mnemonic illustration of vocabulary word pato = duck.

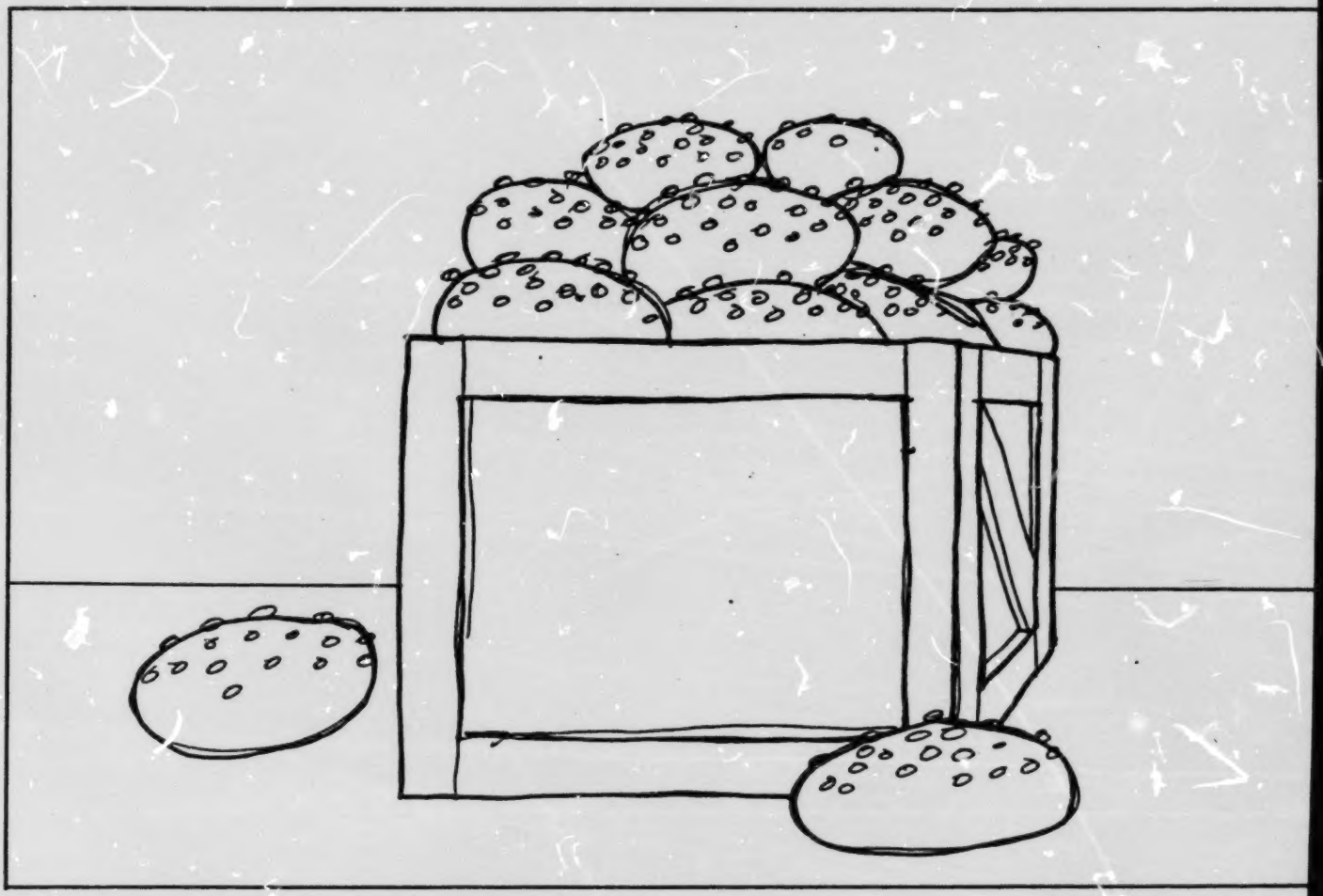
Figure 2. Mnemonic illustration of mineral and hardness level, bauxite = 1.

Figure 3. Mnemonic illustration of President Lincoln = President 16.

Pato (pot) Duck

BAUXITE
box

One
bun



16

Abraham LINCOLN

sticks

link